



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,701	02/14/2001	Rong Pan	STFD.009PA	6340
40581	7590	12/08/2005	EXAMINER	
CRAWFORD MAUNU PLLC 1270 NORTHLAND DRIVE, SUITE 390 ST. PAUL, MN 55120			NGUYEN, STEVEN H D	
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/783,701	Applicant(s) PAN ET AL.	
	Examiner Steven HD Nguyen	Art Unit 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/20/05 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller (USP 6606301) in view of Bellaton (USP 6473425).

Regarding claims 1 and 12-13, Muller discloses a method for managing a queue (Fig 24, Ref 2400) susceptible to unbalanced bandwidth allocation, comprising in response, mitigating unbalanced bandwidth allocation due to congestion-problem flows by reducing the processing priority of at least one of said at least one selected packet, and the recently-received packet (Col. 105, lines 50 to col. 106, lines 17, lines 41-50, col. 108, lines 8-20, col. 109. lines 13-44, col. 111, lines 35-49, Col. 112, lines 2-6, Processing priority reads on discard the packet). However, Muller fails to disclose detecting a matching flow identification between a recently-received incoming packet with at least one packet selected from a set of outgoing packets in order to determine which packet to be dropped. In the same field of endeavor, Bellaton discloses a server includes a processor (Fig 2, ref 28 for executing the software) for detecting a matching flow identification between a recently-received incoming packet with at least one packet selected from a set of outgoing packets in order to determine which packet to be dropped (Fig 11 discloses matching the flow ID of new packet with a stored packet and deciding which packet to be dropped at the node, "processing priority" reads on discarding or not).

Since, Muller suggests a method and system that matching a flow identifier of new packet with the stored flow ID. Therefore, it would have been obvious to one of ordinary skill in the art to apply a method and system for matching the flow id of the new packet with the stored packet in the queue in order to determine which packet should be dropped as disclosed by Bellaton into the teaching of Muller. The motivation would have been to provide a fair share of the bandwidth between the flows.

Regarding claim 2, Bellaton discloses detecting the matching flow identification includes comparing the flow identification of the recently-received incoming packet with the flow

Art Unit: 2665

identification of said at least one packet selected from a set of outgoing packets, and wherein step of detecting the matching flow identification is responsive to the comparison (Fig 11, Ref 130-134 wherein Fig 11, Ref 134 is used to compare the flow id of the new and stored packet).

Regarding claim 3, Muller discloses quantifying congestion-problem flows, and assigning a processing priority to the quantified congestion-problem flows as a function of the quantification (Col. 108, lines 8-20, Col. 111, lines 35-50 and col. 112, lines 2-6, discarding or dropping the packet based on random early function).

Regarding claim 4, Muller discloses the processing priority includes dropping more candidate packets as the number of unresponsive flows increases, and wherein mitigating unbalanced bandwidth allocation and reducing the processing priority includes using a stateless FIFO queue, and further including quantifying unresponsive flows, and dropping more candidate packets as the number of unresponsive flows increases (Col. 108, lines 8-20, Col. 111, lines 35-50 and col. 112, lines 2-6, discarding or dropping the packets of the un-response flows from the queue based on random early function).

Regarding claim 5, Muller discloses selecting said at least one packet from the set of outgoing packets as a function of a random probability (Col. 108, lines 8-20, Col. 9, lines 13-44, Col. 111, lines 35-50 and col. 112, lines 2-6).

Regarding claim 6, Muller discloses said at least one packet includes a plurality of packets (Col. 111, lines 35-50).

Regarding claim 7, Muller discloses reducing the processing priority includes dropping said at least one selected packet (col. 112, lines 2-6).

Regarding claim 8, Muller discloses reducing the processing priority includes dropping the recently-received packet (col. 112, lines 2-6).

Regarding claim 9, Muller discloses selecting said at least one packet from the set of outgoing packets as a function of a probability corresponding to the location of the selected packet in the queue (Col. 111, lines 35-50 and Fig 24 the location of the packet within the region of probability indicator for discarding).

Regarding claim 10, Muller discloses including selecting said at least one packet from the set of outgoing packets as a function of a probability corresponding to a misbehaving flow (Col. 111, lines 35-50 and Fig 24).

Regarding claim 11, Muller discloses a method for managing a queue susceptible to unbalanced bandwidth allocation comprising selecting a packet subset from the set of outgoing packets as a function of a probability corresponding to at least one of a misbehaving flow (Col. 111, lines 35-50 and Fig 24), and the location of the selected packet in the queue (Col. 111, lines 35-50 and Fig 24 the location of the packet within the region of probability indicator for discarding); and in response, mitigating unbalanced bandwidth allocation due to congestion-problem flows by dropping the processing priority of at least one of the selected packet subset, and the recently-received packet (Col. 105, lines 50 to col. 106, lines 17, lines 41-50, col. 108, lines 8-20, col. 109. lines 13-44, col. 111, lines 35-49, Col. 112, lines 2-6, Processing priority reads on discard the packet). However, Muller fails to disclose comparing a recently-received incoming packet with the selected packet subset and detecting therefrom a matching flow identification in order to determine which packet to be dropped. In the same field of endeavor, Bellaton discloses a server includes a processor (Fig 2, ref 28 for executing the software) for

Art Unit: 2665

comparing a recently-received incoming packet with the selected packet subset and detecting therefrom a matching flow identification in order to determine which packet to be dropped (Fig 11 discloses matching the flow ID of new packet with a stored packet and deciding which packet to be dropped at the node, "processing priority" reads on discarding or not).

Since, Muller suggests a method and system that matching a flow identifier of new packet with the stored flow ID. Therefore, it would have been obvious to one of ordinary skill in the art to apply a method and system for comparing the flow id of the new packet with the stored packet in the queue for matching flow ID in order to determine which packet should be dropped as disclosed by Bellaton into the teaching of Muller. The motivation would have been to provide a fair share of the bandwidth between the flows.

Regarding claim 14, Muller discloses adapted to prioritize the flow of packets in a queue according to identification codes associated with the respective packets (Col. 106, lines 30-40 and Col. 111, lines 10-34, the flow is prioritized based on priority code in the packet such as protocol type, applications such as file transfer, voice etc).

Regarding claim 15, Muller discloses including selecting said at least one packet from the set of outgoing packets as a function of a random probability (Col. 108, lines 8-20, Col. 9, lines 13-44, Col. 111, lines 35-50 and col. 112, lines 2-6).

Regarding claim 16, Muller discloses including selecting said at least one packet from the set of outgoing packets as a function of a probability corresponding to the location of said at least one selected packet in the queue (Col. 111, lines 35-50 and Fig 24 the location of the packet within the region of probability indicator for discarding).

Regarding claim 17, Muller discloses including selecting said at least one packet from the set of outgoing packets as a function of a probability corresponding to a misbehaving flow (Col. 111, lines 35-50 and Fig 24).

Regarding claim 18, Muller inherent discloses mitigating unbalanced bandwidth allocation does not include maintaining state information (RED does not store the stored information above dropping the packets).

Regarding claim 19, Muller and Bellaton inherently discloses another communicatively-coupled server that is not adapted to detect a matching flow identification between a recently-received incoming packet with at least one packet selected from a set of outgoing packets, and, in response to the matching flow identification detection, to mitigate unbalanced bandwidth allocation by reducing the processing priority of at least one of said at least one selected packet and the recently-received packet (Sources that generates does not includes RED in Muller and Bellaton performs this function on a server, not on the source and destination) .

Regarding claim 20, Muller discloses a system for managing a queue susceptible to unbalanced bandwidth allocation, comprising in response, mitigate unbalanced bandwidth allocation due to congestion-problem flows without maintaining state information and by reducing the processing priority of at least one of said at least one selected packet, and the recently-received packet (Col. 105, lines 50 to col. 106, lines 17, lines 41-50, col. 108, lines 8-20, col. 109. lines 13-44, col. 111, lines 35-49, Col. 112, lines 2-6, Processing priority reads on discard the packet), the packet being selected as a function of a probability corresponding to a misbehaving flow (Col. 111, lines 35-50 and Fig 24) . However, Muller fails to disclose a server including a CPU arrangement programmed and arranged to compare a recently-received

incoming packet with at least one packet selected from a set of outgoing packets for matching flow ID. In the same field of endeavor, Bellaton discloses a server includes a processor (Fig 2, ref 28 for executing the software) for comparing a recently-received incoming packet with the selected packet subset and detecting therefrom a matching flow identification in order to determine which packet to be dropped (Fig 11 discloses matching the flow ID of new packet with a stored packet and deciding which packet to be dropped at the node, "processing priority" reads on discarding or not).

Since, Muller suggests a method and system that matching a flow identifier of new packet with the stored flow ID. Therefore, it would have been obvious to one of ordinary skill in the art to apply a method and system for comparing the flow id of the new packet with the stored packet in the queue for matching flow ID in order to determine which packet should be dropped as disclosed by Bellaton into the teaching of Muller. The motivation would have been to provide a fair share of the bandwidth between the flows.

Regarding claim 21, Muller discloses choosing to drop more candidate packets as the number of unresponsive flows increases (Col. 108, lines 8-20, Col. 111, lines 35-50 and col. 112, lines 2-6, discarding or dropping the packets of the un-response flows from the queue based on random early function).

Regarding claim 22, Muller discloses a system for managing a queue in a flow-identification arrangement susceptible to unbalanced bandwidth allocation, comprising a stateless FIFO queue (Fig 24) configured and arranged to receive packets having associated flow identification information; the packet being selected as a function of at least one of a random probability and the location of the selected packet in the queue (Col. 111, lines 35-50 and Fig 24

Art Unit: 2665

the location of the packet within the region of probability indicator for discarding); and in response to the matching flow identification detection, mitigating unbalanced bandwidth allocation without maintaining state information for the FIFO queue and by reducing the processing priority of said at least one selected packet and the recently-received packet (Col. 105, lines 50 to col. 106, lines 17, lines 41-50, col. 108, lines 8-20, col. 109. lines 13-44, col. 111, lines 35-49, Col. 112, lines 2-6, Processing priority reads on discard the packet; Red does not maintain the state information of queue). However, Muller fails to disclose a server including a CPU arrangement programmed and arranged to detect a matching flow identification between a recently-received incoming packet with at least one packet selected from a set of outgoing packets. In the same field of endeavor, Bellaton discloses a server includes a processor (Fig 2, ref 28 for executing the software) for comparing a recently-received incoming packet with the selected packet subset and detecting therefrom a matching flow identification in order to determine which packet to be dropped (Fig 11 discloses matching the flow ID of new packet with a stored packet and deciding which packet to be dropped at the node, "processing priority" reads on discarding or not).

Since, Muller suggests a method and system that matching a flow identifier of new packet with the stored flow ID. Therefore, it would have been obvious to one of ordinary skill in the art to apply a method and system for comparing the flow id of the new packet with the stored packet in the queue for matching flow ID in order to determine which packet should be dropped as disclosed by Bellaton into the teaching of Muller. The motivation would have been to provide a fair share of the bandwidth between the flows.

Regarding claim 23, Muller discloses choosing to drop more candidate packets as the number of unresponsive flows increases (Col. 108, lines 8-20, Col. 111, lines 35-50 and col. 112, lines 2-6, discarding or dropping the packets of the un-response flows from the queue based on random early function).

Regarding claim 24, Muller discloses a method for managing a queue susceptible to unbalanced bandwidth allocation, comprising quantifying congestion-problem flows, and assigning a processing priority to the quantified congestion-problem flows as a function of the quantification; and in response, mitigating unbalanced bandwidth allocation due to congestion-problem flows by reducing the processing priority of at least one of: said at least one selected packet, and the recently-received packet (Col. 105, lines 50 to col. 106, lines 17, lines 41-50, col. 108, lines 8-20, col. 109. lines 13-44, col. 111, lines 35-49, Col. 112, lines 2-6, Processing priority reads on discard the packet). However, Muller fails to disclose comparing a flow identification of a recently-received incoming packet with a flow identification of at least one packet selected from a set of outgoing packets; detecting, in response to the comparison, a matching flow identification between the recently-received incoming packet with said at least one packet selected from the set of outgoing packets. In the same field of endeavor, Bellaton discloses comparing a flow identification of a recently-received incoming packet with a flow identification of at least one packet selected from a set of outgoing packets; detecting, in response to the comparison, a matching flow identification between the recently-received incoming packet with said at least one packet selected from the set of outgoing packets (Fig 11 discloses matching the flow ID of new packet with a stored packet and deciding which packet to be dropped at the node, “processing priority” reads on discarding or not).

Art Unit: 2665

Since, Muller suggests a method and system that matching a flow identifier of new packet with the stored flow ID. Therefore, it would have been obvious to one of ordinary skill in the art to apply a method and system for comparing the flow id of the new packet with the stored packet in the queue for matching flow ID in order to determine which packet should be dropped as disclosed by Bellaton into the teaching of Muller. The motivation would have been to provide a fair share of the bandwidth between the flows.

Regarding claim 25, Muller discloses the processing priority includes dropping more candidate packets as the number of unresponsive flows increases (col. 112, lines 2-6).

Regarding claim 26, Muller discloses including selecting said at least one packet from the set of outgoing packets as a function of a random probability (Col. 108, lines 8-20, Col. 9, lines 13-44, Col. 111, lines 35-50 and col. 112, lines 2-6).

Regarding claim 27, Muller discloses said at least one packet includes a plurality of packets (Col. 111, lines 35-50).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D. Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2665

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Steven HD Nguyen', is positioned above the printed name.

Steven HD Nguyen
Primary Examiner
Art Unit 2665
December 5, 2005